

## REMARKS

In response to the Office Action mailed on November 24, 2004, Applicants respectfully request reconsideration. To further the prosecution of this Application, Applicants submit the following remarks discussing patentability of rejected and newly added claims. Applicants respectfully request that the application be passed to issue.

Claims 1-36 were previously pending in the subject Application. Claims 37-43 are being added by way of this amendment. Thus, after entry of this Amendment, claims 1-43 will be pending. No new matter was added to the application when amending or adding these claims. Also, the submission of any amendments should not be interpreted as acquiescing to any of the rejections.

The following remarks address the rejections of claims 1-36 as set out in the present Office Action and patentability of newly added claims 37-43. Applicants respectfully request reconsideration.

Objection to Claim 21

Applicants have amended claim 21 in accordance with the Examiner's suggestion and are appreciative of the careful review of the claims. Accordingly, claim 20 now depends from claim 11 instead of claim 21.

Summary of an Embodiment of the Invention

Prior to discussion of the pending claims, Applicants would like to briefly discuss an illustrative embodiment of the present invention. One embodiment of the present invention, in contrast to conventional approaches, is directed to techniques for forwarding a request, such as an HTTP request initiated by a client computer, from a network device equipped with the invention, such as a

content switch, to a web cache (or other content delivery device such as a web server) that provides a response back to the client without requiring the response to pass through the switch.

As one example approach of the invention, a network device initially receiving the request, such as a content switch or router, can use a special protocol called a "Heads Up Switching Protocol (HUSP)" to forward the request to the web cache along with additional request information that can include source and destination IP addresses of the request, port information, TCP sequence numbers, client window information (e.g., TCP window information for receiving data), and other related request information, such as HTTP header information all based upon the initial request. The web cache can then use this request information to return content directly back to the client in a HUSP response that is sent to the client without passing through the switch. Thus, the content switch is not burdened with handling all of the responses, and the responses are not delayed due to passing through the content switch. In addition, the HUSP provides a request sequence number that facilitates returning responses from multiple requests by the client in the proper sequence. Thus, the client can provide multiple requests (i.e., pipelined requests) over the same connection to the content switch and can receive responses from the web cache (or other content deliver device) in the same order that the requests were made, without requiring the client to wait until receiving the response to each request before sending another request.

#### Rejections of Claims 1-36 under 35 U.S.C. § 103(a)

The Examiner has rejected claim 1 under 35 U.S.C. § 103(a) based on the teachings of Cohen, et. al, (U.S. Patent 6,389,462) in view of Hericourt, (U.S. Patent 6,792,461). Applicants are appreciative of the Examiner's review of pending claim 1 and respectfully request further consideration of same in view of

the following discussion pointing out why claim 1 is unique over the cited prior art.

According to Cohen, the proxy redirector (likened to the data communication device in the present invention) modifies the complete address specified in a GET request before it is sent to the proxy cache (likened to the data access device in the present invention). The communication from the proxy redirector contains no information regarding the client. Instead, the proxy redirector modifies the request to include a source address of the proxy director and a destination address of the proxy cache. Thus, the proxy cache has no knowledge of the client because Cohen teaches that the proxy redirector utilizes a first connection to communicate with the proxy cache and a second independent connection to communicate with a respective client. The proxy cache only communicates with the proxy redirector that in turn modifies messages sent to the client so that the client thinks the messages are sent from another web server. The proxy redirector provides a bridge between these two connections.

The claimed invention includes limitations not taught or suggested by any of the cited references. For example, in contradistinction to Cohen (and also Hericourt), claim 1 recites that the second request includes "connection establishment information that enables establishment of a communication connection between the data access device and the client." As its name suggests, and as further recited in claim 1, the connection establishment information enables establishment of a connection between the data access device and the client. Neither Cohen nor Hericourt disclose a technique in which the "second request" to the data access device includes connection establishment information enabling the proxy cache (or data access device) to establish a connection with a client. That is, the proxy cache (likened to the data access device of the present invention) does not even have knowledge of the

client based on communication with the proxy redirector. For example, at column 15, lines 17-19, the proxy redirector changes a destination address of the request to that of the proxy and the source address of the request from the client to the proxy redirector. Thus, the proxy cache in Cohen thinks the proxy redirector is the client. How does Cohen disclose sending connection establishment information to the data access device so that the data access device can establish a connection with the client? To the contrary, Cohen discloses how the proxy cache can establish a connection with the proxy redirector, not with the client. Thus, the rejection of claim 1 should be withdrawn since claim 1 includes limitations not found in either cited references.

Furthermore, the Examiner states that Hericourt recites the last element of claim 1, which involves “providing a data transfer approval to the data access device in response to receiving the first response, the data transfer approval authorizing the data access device to establish the communication connection to the client based on the connection establishment information and provide a second response to the second request to the client.”

Applicants respectfully disagree with the office action’s assessment that Hericourt teaches this claim element. Hericourt does discuss use of security features in network environments. For example, Hericourt at column 3, lines 52-65, discusses use of a firewall. However, a mere mention of a firewall and use of an ALP policing table (as further cited by the office action) does not suggest the claimed invention because the claimed and firewalls operate in entirely different ways. Firewalls prevent flow of data by filtering certain communications. The claimed invention explicitly recites providing a data access approval from the data communication device (likened to the proxy redirector) to a data access device (likened to the proxy cache). The firewall in Hericourt provides no such approval from a data communication device to a data access device for purposes of enabling establishment of a communication link with the client.

Neither Cohen nor Hericourt discloses forwarding a request, receiving a response, and thereafter providing a data transfer approval. In the context of Hericourt, it would not make sense for a firewall to send a request to a data access device for access purposes and thereafter provide a data transfer approval to the data access device to establish a connection. What specific passage in Hericourt describes such functionality? Applicants contend that there is no such showing in either of the references.

As recited in claim 1, the data transfer approval of the claimed invention authorizes the data access device to i) establish a communication connection to the client based on the connection establishment information, and ii) provide a response to the client. There is no indication in Hericourt (or Cohen) of providing this function, and certainly not in the context as discussed in Cohen. That is, Cohen does not support providing an approval from a data communication device to a data access device as in the claimed invention.

The office action also alludes to use of an ALP policing function in Hericourt. It is not clear how this provides anything more than standard traffic control in a firewall application. Applicants respectfully request the Examiner allow claim 1 or particularly point out language in the references that specifically teach these functions.

Applicants submit that claim 1 is patentable because it recites a novel technique never used or even suggested by the prior art. For example, the techniques as recited in the claimed invention differ from the combined teachings of Cohen and Hericourt to solve a problem not addressed by either of such references. As stated, providing the connection establishment information and the approval to the data access device (e.g., a remote device having the ability to service the request) in the context of claim 1 enables the data access device to

communicate and establish a connection link with the client. For example, providing the approval to the data access device (a remote device with respect to the data communication device) enables the data access device to i) establish a connection with the client and ii) respond to the client request. Accordingly, the data communication device initially receiving the request from the client can forward the request to the data access device and, thereafter, provide approval to the data access device to handle the request. This relinquishes the data communication device from having to be further involved in communications.

Neither Cohen nor Hericourt discloses forwarding a request and thereafter providing a data transfer approval. In the context of Hericourt, it would not make sense for a firewall to send a request to a data access device for access purposes and thereafter provide a data transfer approval to the data access device to establish a connection. In summary, therefore, the recited Cohen and Hericourt references do not individually or combined disclose forwarding of a request to a data access device, receiving a response from the data access device, and then providing an approval to the data access device to service the request by establishing a communication connection to the client.

Based on the aforementioned remarks, Applicants respectfully submit that the invention as recited in claim 1 is neither anticipated nor obvious because it includes a unique and useful configuration not taught or suggested by Cohen, Hericourt or any other reference of record. Thus, in view of the foregoing discussion, Applicants submit that claim 1 in its original form is patentably distinct and advantageous over the cited prior art, and the obviousness rejection should be withdrawn. Accordingly, allowance of claim 1 as well as corresponding dependent claims 2-10 is respectfully requested.

Claim 11, 21, and 22 include similar limitations as recited in claim 1 above. For applicable reasons as discussed above, claim 10 and corresponding dependent claims 12-20 are patentably distinct over the cited prior art.

Claim 3 includes further limitations not disclosed by Cohen. For example, claim 3 recites the steps of “receiving a plurality of first requests to access data from the client;” “providing a plurality of second requests in response to receiving the first requests, each second request including a request sequence number;” and “providing a data transfer approval for each of a plurality of responses to the second requests in a sequence based on the request sequence numbers for the second requests.” The Examiner cites column 10, lines 11-31 to reject the claimed invention. Applicants submit that this cited passage discloses that a client sends a single GET request. For example, column 9 lines 19-24 identify that the following paragraph (starting at column 10 line 11) describes how to use sequence numbers to identify portions of communications associated with a same request message.

In contradistinction, the claimed invention uses sequence numbers to identify that a particular request is one of a sequence of multiple requests received by the data communication device. This enables the data communication device and data access device to more easily keep track of multiple requests and speed up communications. That is, the data communication device and data access device can use the sequence number to identify which request of multiple requests the message pertains. The cited reference provides no indication of this technique because the reference does not address the same communication issue. For example, Cohen discloses that the messages associated with a request are numbered so that data in the multiple data packets can be recombined into an original data block. Thus, Cohen does not teach the limitations found in claim 10.

Accordingly, Cohen does not disclose this aspect of the invention. Applicants therefore respectfully request allowance of dependent claims 3 and 13.

Claim 4 also includes further limitations not disclosed by Cohen. For example, claim 4 recites that the data communication device sends the request to multiple data access devices. The data communication device receives response from a subset of the data access devices and chooses one of the devices to respond to the request. Applicants again point to the passage starting at column 9 line 19 in Cohen that the cited passages discuss sending a single GET request and not multiple requests as stated by the office action. There is no transmitting a request to multiple data access devices for the purposes of receiving a response from at least a subset of the data access devices.

Accordingly, Cohen does not disclose this claimed aspect of the invention. Applicants therefore respectfully request allowance of dependent claims 4 and 14. In the alternative, Applicants request the Examiner cite a reference disclosing this aspect of the claimed invention.

Claim 5 also includes further limitations not disclosed by Hericourt. For example, claim 5 depends on claim 4 and recites that responses include usage information. The data communication device utilizes the usage information to select a data access device for servicing the request. The cited references discuss load balancing. However, the references do not discuss load balancing in a same way as in the context of the present invention as in claim 5. A mere general disclosure of security provided by a firewall does not teach the specific configuration as in claim 5. Applicants therefore respectfully request allowance of dependent claims 5 and 15.



Claims 23, 29, 35, and 36 as filed are written from the perspective of a data access device receiving a client request from a data communication device. Claims 23, 29, 35 and 36 include analogous limitations as in claim 1 and are patentably distinct over the cited prior art for similar reasons. Applicants therefore request allowance of claims 23, 29, 35, and 36 as well as respective dependent claims 24-28 and 30-34.

#### New Claims 37-43

Applicants respectfully request entry and consideration of new claims 37-43. Support for claim 37 and 41 can be found at page 6 lines 6-27, figure 1, as well as elsewhere throughout the specification. Support for claim 38 and 42 can be found at page 17 lines 16-18, figure 5, as well as elsewhere throughout the specification. Support for claim 39 and 43 can be found at page 6 lines 6-27, figure 1, as well as elsewhere throughout the specification. Support for claim 40 can be found at page 24, lines 7-11, figure 1, as well as elsewhere throughout the specification.

Claims 37 and 41 recite that the data access device establishes a connection other than through the data communication device. Both references disclose servicing a request through a proxy server or proxy redirector. Thus, Applicants request allowance of claim 37 and 41.

Claims 38 and 42 recite that the data communication device sends the address of the client to the data access device. A direct communication connection between the data access device and the client alleviates the data communication device from being bogged down by such communications. Both references disclose servicing a request through a proxy server or proxy redirector. Thus, Applicants request allowance of claim 38 and 42.

-27-

Claims 39 and 43 recite utilization of a sequence number for facilitating servicing of multiple requests from the client to the data communication device. Neither reference discloses this technique of ordering requests. Thus, Applicants request allowance of claim 39 and 43.

Claim 40 recites a bidding process according to an embodiment of the invention. Neither reference discloses this technique of bidding for servicing, especially in the context of servicing the requests other than via communications through the data communication device. Thus, Applicants request allowance of claim 40.

### CONCLUSION

In view of the foregoing remarks, Applicants submit that the pending claims as well as newly added claims are in condition for allowance. A Notice to this affect is respectfully requested. If the Examiner believes, after reviewing this Response, that the pending claims are not in condition for allowance, the Examiner is respectfully requested to call the Applicant(s) Representative at the number below.

If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 50-0901.

-28-

If the enclosed papers or fees are considered incomplete, the Patent Office is respectfully requested to contact the undersigned Attorney at (508) 366-9600, in Westborough, Massachusetts.

Respectfully submitted,



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